

Claims

1. A pressure compensation device for a two-part container which consists of an outer container and an inner container, and the inner container contains an, at least partially volatile, fluid, and the two-part container is disposed in gas-filled surroundings, wherein
 - the inner container (2) is impenetrable to diffusion to a limited extent vis-à-vis the, at least partially volatile, fluid (3), and is collapsible, and the outer container (1) is impenetrable to diffusion and rigid, and
 - the outer container (1) is sealingly connected to the inner container (2), and
 - a gas-filled intermediate space (5) is present between the two containers, and
 - at least one channel (7; 11; 23) communicates the gas-filled intermediate space (5) between the outer container (1) and the inner container (2) with the surroundings of the two-part container, and
 - the, at least one, channel has a cross-sectional surface area with an equivalent diameter of between 10 μm and 500 μm , and
 - the, at least one, channel, is in length equal to between five thousand times and one tenth of a time, the equivalent diameter of the, at least one, channel.
2. A pressure compensation device according to claim 1, characterised by
 - a channel (7; 11; 23), the length of which is preferably between one hundred times and one tenth, particularly preferably between ten times and once, as great as the equivalent diameter of the, at least one, channel.
3. A pressure compensation device according to claims 1 and 2, characterised by
 - a channel (7; 11; 23) of round, approximately square, triangular, or trapezoidal cross-section.

4. A pressure compensation device according to claims 1 to 3, characterised by
 - a channel (7; 23) which is straight,
 - or a channel which is shaped in the form of a meander or a spiral (11) or a screw.
5. A pressure compensation device according to claims 1 to 4, characterised by
 - a channel (7; 11) which is arranged in the wall of the outer container,
 - or a channel which is arranged in an insert (15; 19; 27) preferably consisting of plastics material, which is arranged on the wall of the outer container (1), preferably in a recess (12) projecting into the outer container, and which communicates with an opening (18; 25) in the wall of the outer container (1).
6. A pressure compensation device according to claims 1 to 5, characterised by
 - a channel (7; 11; 23) with a cross-sectional surface area of less than 1 square millimetre.
7. A pressure compensation device according to one of claims 1 to 6, characterised by
 - a channel (7; 23), at the one end, preferably at the end facing the surroundings, of which is arranged a gas-permeable filter (16; 24).
8. A pressure compensation device according to claims 1 to 7, characterised by
 - a channel (7; 11; 23), the end of which facing the surroundings is closed by means of a sealing foil (8).
9. A pressure compensation device according to claim 1, characterised by
 - a plurality of channels which communicate the gaseous space between the outer container and the inner container with the surroundings of the two-part container, wherein the channels are present in the form of pores in a plate (29) consisting of an open-pore sintered material,

and which have a mean pore diameter of between 0.1 micrometers and 150 micrometers with a pore volume of between 1% and 40% of the volume of the sintered body.

10. A pressure compensation device according to claim 1, characterised by a plurality of channels which are present in a permeable membrane in the form of a foil, a woven cloth or a fleece.
11. A pressure compensation device according to claim 10, characterised by a plurality of channels which are present in a permeable membrane consisting of a thermoplastics synthetic material, such as polytetrafluor ethylene or polyether ether ketone, or a plurality of channels which are present in a permeable membrane consisting of an elastomer, such as silicone or latex.
12. A pressure compensation device according to claim 10, characterised by a plurality of channels which are present in a permeable membrane in the form of a foil of metal, such as gold, silicium, nickel, high-quality alloy steel, or glass or ceramics, and which are arranged in non-uniform or uniform manner.
13. A pressure compensation device according to claim 9, characterised by a plurality of channels which are present in the form of pores in a plate consisting of an open-pore sintered synthetic material, preferably polyethylene, polypropylene, polyvinylidene fluoride, or glass, quartz, ceramics or metal.
14. A pressure compensation device according to claim 1, characterised by an outer container (1) consisting of a rigid material, preferably a metal.